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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/547,273 | 04/11/2000 | Glenn Clement Aikens | RSW9-2000-0024-US1 | 4966 |

25259 7590 05/19/2003

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| EXAMINER | |
|---|---|
| PRIETO, BEATRIZ | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2142 | |

DATE MAILED: 05/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/547,273 | AIKENS ET AL. | |
| | Examiner | Art Unit | |
| | B. Prieto | 2142 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *04/11/00* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☐ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## *DETAILD ACTION*

1. This communication is in response to application filed 04/11/00, subsequent change of address/power of attorney filed 05/23/01 has been treated and entered accordingly. Drawings have been approved by the Draftsperson. Claims 1-19 remain pending and are hereby set forth for examination.

### *Claim Objections*

2. Claims 5 and 10 are objected to under 37 C.F.R. 1.75 because of the following informalities: dependent claim which refers to more than one other claim ("multiple dependent claim") shall refer to such other claims in the alternative only, see MPEP 608.01(i). Correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 7 and 1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brichta U.S. Patent No. 5,864,483 in view of Tunnicliffle et. al. (Tunnicliffle) U.S. Patent No. 6,272,110.

Regarding claim 7, Brichta teaches various features of the invention as substantially as claimed, teaching a system (col 1/lines 37-50), method (col 1/lines 51-60) and computer implementation (col 9/lines 28-34) including a method for providing an alert (col 1/lines 61-64), said method comprising the steps of:

monitoring the provided service to obtain periodically or at predefined periods (i.e. on a recurring basis), sets of network performance samples representing actual network performance (samples: col 3/lines 46-49, actual network performance: col 3/line 54-56 monitoring: col 6/lines 67-col 7/line 5, recurring: col 7/lines 29-37);

using the obtained sets of samples to generate a mathematical representation of a pattern or trend (current trend) in the network performance represented by obtained network performance

measurements or metric (pattern: col 7/lines 50-64, trend: col 8/lines 49-col 9/line 27 and mathematical representation, col 10/line 30-67, determine a pattern using a mathematical representation: col 4/lines 17-40);

foreseeing, expecting, or anticipating, i.e. predicting based on the mathematical representation the future time when the current trend in the network performance metric will exceed a defined threshold (col 10/lines 30-67, col 8/lines 50-col 9/line 27); and

generating an alert if the predicted future time (elapsed time) is within a fixed future time window (predetermined time) from the current time (alert: col 9/lines 11-15);

although prior art teaches anticipating based on a mathematical representation the future time when the current trend in the network performance metric or measurement samples will exceed a defined threshold in the future, if the pattern continues, it does not call this a "predicted time";

Tunnicliffle teaches predicting the time when the current trend in the network performance metric (col 5/lines 4-8, 18-19, 53-55, mathematical representation, Figs. 1 & 3) will exceed a defined threshold (col 33/lines 21-55, col 4/lines 41-59); providing a notification or notice (i.e. an alert) (col 5/lines 47-51, urgent indication, alert, col 7/lines 10-12) if the predicted time is within a fixed time window (col 4/lines 24-25, 51-52, Fig. 1 and 3);

It would have been obvious to one ordinary skilled in the art at the time the invention was made to compliment Brichta's system with means for predicting the time when the current trend in the network performance will exceed a defined threshold, as taught by Tunnicliffle, motivation would be predict the time, how long will the threshold be exceeded and to what extent these thresholds will be exceeded in the future.

Regarding claim 1, monitoring a network performance measurement on a recurring basis to obtain samples of the metric value (Brichta samples: col 3/lines 46-49, actual network performance: col 3/line 54-56 monitoring: col 6/lines 67-col 7/line 5, recurring: col 7/lines 29-37);

determining a predicted trend in network performance measurement or metric representing an actual provided network service based on obtained samples of the metric values (Brichta: pattern: col 7/lines 50-64, trend: col 8/lines 49-col 9/line 27, Tunnicliffle: (predicted time when trend: col 5/lines 4-55, Figs. 1 & 3,col 33/lines 21-55, col 4/lines 41-59);

determining a (performance violation time) time at which the actual service will cease to meet the established performance requirements if the determined trend continues (Tunnicliffle: col 33/lines 21-55, col 4/lines 41-59, Brichta: col 10/lines 30-67, col 8/lines 50-col 9/line 27).

5. Claim 2-5 and 8-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brichta U.S. Patent No. 5,864,483 in view of Tunnicliffle et. al. (Tunnicliffle) U.S. Patent No. 6,272,110 in further view of Aras et. al. (Aras) U.S Patent No. 5,884,175.

Regarding claim 2, however the above-mentioned prior art does not explicitly teach determining a trend is performed using linear regression (col 6/lines 18-36); using obtained on a recurring basis a set of network performance samples representing actual network performance (col 5/lines 51-62, col 6/lines 19-20);

It would have been obvious to one ordinary skilled in the art at the time the invention was made to utilize prior art teachings for determining a current in the network performance metric, as taught by Aras, motivation would be allocate network resources based on the determined current trend in the network performance which provides a model for forecasting future values based on the obtained samples obtained on a recurring past occurrences, as taught by Aras.

Regarding claim 3, determine whether the analyzed set satisfies predetermined sample criteria and discarding those samples that fails to satisfy the predetermined sample criteria (Brichta: col 7/lines 65-col 8/line 5).

Regarding claim 4, determining whether the standard deviation of the set is greater than a predetermined amount (percentage) of the mean of the sample (Brichta: col 2/lines 23-27, col 1/lines 46-49).

Regarding claim 5, generating an alert if the performance violation time is predicted to fall within a fixed time window beginning at the current time (Brichta: col 9/lines 11-15, Tunnicliffle: col 5/lines 47-51, urgent indication, alert, col 7/lines 10-12).

Regarding claim 8, transmitting the generated alert to a network operator (Brichta: alert: col 9/lines 11-15, & Tunnicliffle: col 5/lines 47-51, urgent indication, alert, col 7/lines 10-12).

Regarding claim 9, the mathematical representation is generated using linear regression techniques (Aras: col 6/lines 18-36).

Regarding claim 10, this claim comprises the computer-implemented method as set forth in claims 7-9 wherein the step of' using the obtained samples includes the additional steps of:

calculating predefined statistical parameters of each obtained set of samples (Brichta; samples: col 3/lines 46-49, statistical parameters: col 7/lines 17-37);

determining whether the calculated statistical parameters meet predefined threshold requirements (Brichta: col 7/lines 50-61); and

terminating the process of obtain on a recurring basis, sets of network performance samples representing actual network performance if where the calculated statistical parameters for an obtained set of samples fails to meet the predefined threshold requirements (Brichta: col 7/lines 65-col 8/line 5, sample requirement, col 3/lines 60-67).

Regarding claim 11, the calculated statistical parameters comprise the standard deviation and mean of the set of samples (Brichta: col 7/lines 17-28) and the predefined threshold requirement requires that the standard deviation be no greater than a predetermined amount above (percentage) the mean (Brichta: col 2/lines 23-27, col 1/lines 46-49).

Regarding claim 12, this claim comprises the apparatus (i.e. system) associated with the compute-implemented method claim 1 and the system of claim 7, particularly disclosing the apparatuses for performing the steps disclosed on said claims 1 and 7, same rationale of rejection is applicable to this apparatus claim.

Regarding claim 13, this claim comprises the apparatus associated with the computer-implemented method on claim 8, same rationale of rejection is applicable.

Regarding claim 14, this claim comprises the apparatus associated with claims 1, 7 and 9, same rationale of rejection is applicable.

Regarding claim 15, determining a relation (ratio) of the standard deviation and the mean of each obtained set of samples (Brichta: col 2/lines 18-28); and terminating any prediction computation where an obtained set of samples is determined to have a relation (ratio) exceeding a predefined threshold (Aras: col 7/lines 3-4, 8-9).

Regarding claim 16, this claim comprises the article of manufacture comprising a computer useable medium having a computer readable program embodied in said medium, wherein the computer readable program when executed in the computer causes the computer to perform the method discussed on claim 1 and the system discussed on claims 7 and 12, same rationale of rejection is applicable to this apparatus claim.

Regarding claim 17, this claim comprises the article of manufacture comprising a computer useable medium having a computer readable program embodied in said medium, wherein the computer readable program when executed in the computer causes the computer to perform the method discussed on claim 1 and the system discussed on claims 7 and 12, same rationale of rejection is applicable; this claim further includes set of samples used to generate a mathematical representation of the current trend in the network performance metric, which fails to satisfy predetermined sample criteria are not to be used (Brichta: col 7/lines 65-col 8/line 5);

Regarding claim 18, this claim comprises the article of manufacture comprising a computer useable medium having a computer readable program embodied in said medium, wherein the computer readable program when executed in the computer causes the computer to perform the method discussed on claim 1 and the system discussed on claims 7 and 12, same rationale of rejection is applicable.

Regarding claim 19, this claim comprises the article of manufacture comprising a computer useable medium having a computer readable program embodied in said medium, wherein the computer readable program when executed in the computer causes the computer to perform the method discussed on claim 1 and the system discussed on claims 7, 10 12, same rationale of rejection is applicable; and further use retained sets of samples in generating a mathematical representation of a current trend in service metric values (Brichta: col 7/lines 65-col 8/line 5);

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brichta U.S. Patent No. 5,864,483 in view of Tunnicliffle et. al. (Tunnicliffle) U.S. Patent No. 6,272,110 in further view of Baumann et. al. (Baumann) U.S. Patent No. 5,469,148.

Regarding claim 6, however the above-mention prior art does not teach canceling a previously generated alert in the absence of a prediction that the performance violation time will fall within the fixed time window.

Baumann teaches a monitoring mechanism configured to canceling a previously generated error signal in absence of the occurrence that a performance violation time has occurred within a fixed period of time (col 1/lines 1-9, 39-58, cancel the alarm signal, col 5/lines 7-17);

It would have been obvious to one ordinary skilled in the art at the time the invention was made to include means for canceling a previously generated error signal in absence of the occurrence that a performance violation time has occurred within a fixed period of time, as taught by Baumann, to further cancel a previously generated alert in the absence of a prediction that the performance violation time will fall within the fixed time window, motivation would be to ensure that only deviation in performance occurring over a predetermined period of time are reported before engaging in corrective measures, as suggested by Baumann.

## ***Citation of Pertinent Art:***

7 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure; Copies of documents cited will be provided as set forth in MPEP§ 707.05(a):

Service Level Agreements- An Emerging Trend in the Internet Service Market, Agilent Technologies, 1999, pages 1-10.

Agilent Technologies teaches monitoring the provided service performance to obtain, on a period of time, sets of measured samples representing network performance-based metrics of the actual quality of service provided; using the obtained sets of samples to generate a mathematical deviations and trends the network performance metric; using these mathematical representations, to predicting when the network performance metric will exceed a defined network performance constraints as defined by the service level agreements; and generating an alert if the predicted trends and deviations exceed SLA compliance levels, including means to provide preemptive warning of potential SLA violation.

## *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prieto, B. whose telephone number is (703) 305-0750. The Examiner can normally be reached on Monday-Friday from 6:00 to 3:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's Supervisor, Mark R. Powell can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-6606. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800/4700.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
Washington, D.C. 20231

or Faxed to:

(703) 746-7239, for Official communications and entry

Or:

(703) 746-7240, for Non-Official or draft communications, please label "PROPOSED" or "DRAFT".

Or Telephone:

(703) 306-5631 for TC 2100 Customer Service Office.

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Fourth Floor (Receptionist), further ensuring that a receipt is provided stamped "TC 2100".

B. Prieto
TC 2100
Patent Examiner
May 13, 2003

MARK R. POWELL
SUPERVISORY PATENT EXAMINER
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